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Support for AppleWorks and ///EZ Pieces Users

AppleWorks Error Messages

Dear Cathy,

I am trying to understand the different error messages that AppleWorks generates when it can't save my work on a floppy disk. Sometimes AppleWorks displays the message "Insufficient room for your file on this disk." At other times the program displays "Getting errors trying to save at Disk 2 (slot 6)." Why the different messages and what is happening on my disks?

Annabel Greene
Brooklyn, New York

[Ed: AppleWorks generates the "Insufficient room..." message when there is some room on the disk, but not enough room to save the current file. The program starts the save process, discovers there is not enough room to complete the save, and displays the "Insufficient room..." message.]

There are at least three reasons AppleWorks will display the "Getting errors trying to save..." message:

- 1. The disk is completely full and AppleWorks cannot start to save the file on the disk.*
- 2. The disk has 51 files in the main directory. ProDOS can only fit 51 files in the main directory on a disk; additional files must go in sub-directories.*
- 3. The disk is damaged and AppleWorks cannot save the file on the disk. This message usually appears after the disk drive makes repeated attempts to access the disk.*

You can usually use AppleWorks to determine the cause of the error message. Go to the Add Files Menu and tell AppleWorks that you want to "Add Files to the Desktop" from the current disk. AppleWorks will display a file card menu with the name of the disk, the amount of space remaining on the disk, and the names of the files in the root directory. You can then determine if you have enough space for your file on the disk. You can also scroll through the directory and count the number of files to insure that you have fewer than 51 files in the root directory.

The process is easier if you have TimeOut File-Master. FileMaster displays the amount of space available on the disk and the number of files on the disk so you know when you are getting close to the 51 file limit.]

Why Use the Clipboard?

Dear NAUG:

I notice that the authors of many of your tutorial articles copy and move word processor text to the clipboard rather than selecting "Within Document". The only time I route a copy through the clipboard is when I copy a large block of a spreadsheet or copy something to a different file. Why do your authors use the clipboard so often?

Larry Sampier
Omaha, Nebraska

[Ed: Whether you copy or move "Within the document" or "To the clipboard" is often a matter of personal preference. Copying or moving to the clipboard takes an extra keystroke but lets you continue working at the current location in the file after you start the copy or move process. You can wait until later to relocate the data and do not have to interrupt your work to complete the move. (UltraMacros users must be careful here. Many UltraMacros commands (e.g., <sa-D> to delete a word) use the clipboard and delete any data you stored there.)]

Using the clipboard also makes it easier to recover if you put the data in the wrong place in the file.]

The **National AppleWorks Users Group (NAUG)** is an association that supports AppleWorks users. NAUG provides technical support and information about AppleWorks and enhancements to that program. Our primary means of communicating with members is through the monthly newsletter entitled the **AppleWorks Forum**.

Member Needs Statistical Templates

Dear NAUG:

Do you know any source of statistical templates for AppleWorks?

Stanley Glasser, MD
Springfield, MA

[Ed: Do any NAUG members know of sources of AppleWorks-compatible descriptive and inferential statistics templates?]

How to Launch Outliner

Dear NAUG:

I am having difficulty installing Outliner. I follow the instructions, get the message that Outliner is installed, but cannot access the program. What is going wrong?

Thomas Finegan, Jr.
Whitehouse Station, New Jersey

[Ed: This is one of several letters we received from members who are unable to access Outliner after installing the program. In all the cases we investigated, the user installed Outliner correctly but issued the wrong keystroke to launch the program.]

The documentation says you should issue an Open-Apple-+ combination to launch Outliner. You must hold down the Shift Key to access the "+" Key. Thus, the correct keystroke combination is Open-Apple-Shift-+.]

Decoding the AppleWorks Forum

Dear Cathleen,

The My Favorite Macro articles frequently use codes such as <asr> and <sa-ctrl-A>. What do these codes mean?

Glen Hiranuma
Vista, California

[Ed: The "codes" you mention are TimeOut UltraMacros "tokens"; commands and keystrokes you can enter into macros for AppleWorks. <sa> means "Solid Apple", <ctrl> is "Control", and <asr> stands for "AppleWorks subroutine". A complete list of UltraMacros tokens appears on page 227 of Mark Munz's book "The UltraMacros Primer", available from NAUG.]

No Slot Clock Patch for ProDOS 1.9

Dear NAUG,

If you use a No Slot Clock with AppleWorks, you should make the following patch to the NSC.INSTALL program that comes with the clock. This patch lets ProDOS 1.9 recognize the clock.


1. Find the line in NSC.INSTALL that includes the text: "THIS VERSION OF PRODOS NOT RECOGNIZED" (This message appears in line 158 in my copy of NSC.INSTALL.)
2. Change the immediately preceding line to

```
157 X=20742:R=10341:IF PEEK(R) < > 208 AND PEEK  
(R) < > 165 THEN R=10341
```

Your line number may be different.

The statement ":IF PEEK(R) < > 208 AND PEEK (R) < > 165 THEN R=10341" at the end of this line lets you use the NSC.INSTALL patch program with earlier versions of ProDOS.

Steve Lawson
Port Orchard, Washington



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Member Recommends LockOut

Dear Cathleen,

The students in my school district use stand-alone and networked Apple IIGS computers in classroom and laboratory settings. Many of the students have a high level of computer skills, which is a mixed blessing.

Until recently we had a problem with knowledgeable students mischievously corrupting the computers by changing the IIGS Control Panel settings. Users would reset the clock, slots, and other settings so the systems would be unreliable.

That was all before I discovered LockOut, a \$10 program that keeps students from changing the Control Panel settings. LockOut lets students change the Control Panel settings on the screen but does not let the changes take effect in the computer.

LockOut has made our heavily used networks more reliable. I recommend the program to anyone who gives students access to their IIGS systems.

John Sonnenberg
Lake Forest, Illinois

[Ed: LockOut was developed and is distributed by John Link, 3382 Sandra Drive, Kalamazoo, Michigan 49004.]

How to Customize Outliner

Dear Cathleen,

I am having problems customizing the labels that Outliner uses for the different levels of the outline. I issue an Apple-L command to access the Labels Options, then select choice #5, "Custom". When I press the Return Key, Outliner returns to my outline and does not let me set the custom labels. Is this a bug in the program?

Robert Fry, MD
Laurel, Maryland

[Ed: Your copy of Outliner is working correctly. The documentation explains that you must enter an Apple-Return to enter custom labels. You also have

to enter an Apple-Return after selecting choice #3, "Symbol", if you want to customize the symbols that Outliner uses for each level of the outline.]

Educational Application of DoubleData

Dear NAUG:

I use AppleWorks to maintain data for the Special Education students in my school. Florida requires that I keep more than 30 items of data per student, so I used to work with two separate student data files. That was terribly inconvenient; I had to constantly edit and update two different files.

I recently discovered DoubleData, a program that lets me work with up to 60 categories in a single AppleWorks data base. Now I keep all the student records in a single file. I find DoubleData easy to use and recommend the program to anyone who uses the AppleWorks data base module.

Scott Anderson
Naples, Florida

[Ed: Until December 31, NAUG members can get DoubleData for \$22.50 from JEM Software, 7578 Lamar Court, Arvada, Colorado 80003. A review of DoubleData appears in the September 1990 issue of the AppleWorks Forum.]

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How to Use @FV

by Stan Hecker

This is the second in a series of articles that describe how to use the financial functions built into AppleWorks 3.0's spreadsheet module. This month, Mr. Hecker describes how to use AppleWorks to predict the future value of an investment. The author assumes you read the previous article in this series.

To compare AppleWorks to a crystal ball is to stretch reality. However, AppleWorks 3.0 offers some spreadsheet functions that can help you predict your financial future. This month I will describe how to use @FV, a function that predicts the future worth of an investment.

Definitions

First, you have to understand the following terms:

Lump Sum: A lump sum transaction consists of one payment followed by a period of waiting and then a second, final payment. For example, if you loan me \$1,000 and I pay you back \$1,200 two years later, we consummated a lump sum transaction.

Annuity: An annuity is a fixed, level stream of payments. The @FV function (and the @TERM and @PMT functions I will describe next month) are designed to handle fixed, level, streams of payments. They are considered annuity functions.

Annuities

The word "annuity" suggests an image of a senior citizen appearing at a bank each month for his or her monthly payment from the trust department. That is one kind of annuity; a retirement annuity.

However, there are other kinds of annuities. Most bank loans, including automobile loans and mortgage loans, are annuities. So are Christmas Club savings accounts and plans that pay college tuition.

When you save money, you generally look at the "future value" of your savings transactions. You want to know what these annuities are worth in the

future. That is a primary application of the @FV function.

Future Value Annuities

A future value annuity is an annuity which has no value at the start but grows to some value through a steady, level stream of payments and a fixed, known compound interest rate. A college tuition savings plan is a good example of such an annuity. Future value annuities are often called "sinking funds".

Imagine that you want to save money for your newborn's college education. You can afford to set aside \$500 a year for the next 17 years, and you will put

the money in an account that you expect will pay 8.25% interest, compounded annually. How much money will be available after 17 years?

You can solve this problem by entering data into the simplest form of the @FV function. The syntax for that function is as follows:

*Now you can
use @FV to
peer into
your financial
future.*

@FV(rate, term, payment)

where "rate" is the periodic interest rate you expect to earn, "term" is the number of payments you will make (i.e., the number of periods), and "payment" is the amount of money you will pay into the annuity during each period.

To solve the college tuition problem, put the cursor in any AppleWorks spreadsheet cell and enter the formula @FV(.0825,17,-500) and press the Return Key. AppleWorks will immediately display "17262.71". If you save \$500 a year for 17 years and are paid 8.25% interest compounded annually, your savings will be worth \$17,262.71.

For More Help...

If you want to use AppleWorks for financial applications, I strongly recommend *Your Best Interest: A Money Book for the Computer Age*, by Tom Weishaar. The book is an outstanding introduction to the world of money and interest for non-experts who own AppleWorks or any other spreadsheet program. Weishaar's writing is clear, witty, balanced, and humorous. Lotteries, batting averages, and the Taj Mahal enliven thorough discussions of Treasury bills, taxes, inflation, and a host of other financial matters, including the chicanery in certain mortgage plans and insurance schemes.

Mr. Weishaar provides step-by-step, cell-by-cell guidance as he helps you build excellent spreadsheets for simple, then increasingly complex, financial analysis.

Your Best Interest costs \$9.95 including postage from A2-Central, Box 11250, Overland Park, Kansas 66207; (913) 469-6502.

Note that you must express the outgoing cash as a negative number; that is money that goes out of your pocket. The result of the calculation is a positive number; it represents money that will flow into your pocket to pay tuition.

In this example, the interest rate is 8.25% (which you must express as a decimal fraction), the "term" is 17 years, and the "payment" consists of annual deposits of \$500.

The "term" (also called "remittance period" or "compounding period" or simply "period") is a number of years, although I will describe ways to change the period later in this article.

Full Syntax

The @FV formula offers two options I did not use in the first example. The complete syntax of @FV is:

@FV(rate, term, payment [, present value, type])

The square brackets indicate that the "present value" and "type" items are optional; you do not type the brackets when you enter the formula.

Present Value Option

The definition of "future value" I offered earlier includes the phrase "no value at the start". However, savings plans often begin with some initial deposit that is different from the level, steady stream of deposits that follow. The Present Value option allows for these starting deposits.

To illustrate: Assume that a pair of proud grandparents are willing to make a \$1,200 initial deposit toward your newborn's college education. Use the Apple-U command and modify the @FV statement so it looks like this:

@FV(.0825,17,-500,-1200)

When you press the Return Key, 21880.74 will appear, showing that the grandparents' generosity will result in an extra \$4,600 when your newborn child registers for college.

The "Type" Option

Most financial functions assume that payments are made at the end of each "term" or remittance period. In real life we usually don't think about saving unless we have some money to save, so we often make our payments, especially savings deposits, at the beginning of the remittance period.

The optional "type" specification accommodates these differences by accepting either a "1" or a "0". If type is blank or set to zero, AppleWorks assumes that all remittances are made at the end of each term or period. By setting type to "1", you tell AppleWorks that all payments will be made the start of each term.

To illustrate, let's expand the example. Assume that the grandparents are willing to put \$1,200 into the college fund, but want you to show your commitment by making your first \$500 deposit along with their \$1,200 contribution. You could simply increase the present value from \$1,200 to \$1,700, but the series would then include 18 payments unless you change the period from 17 years to 16 years. That is misleading because the interest will not be calculated correctly. Instead, you should change the "Type" designation to show that all payments will be made at the beginning of each year. The revised formula looks like this:

Spreadsheet Tips...

@FV(.0825,17,-500,-1200,1)

The revised formula yields a result of \$23,304.91; an increase of more than \$2,000 over the 17 years of deposits. Making deposits at the beginning of the term or remittance period makes a substantial difference in compound interest earned when the remittance periods are extended over many years, as in this example.

Cell References

Now that you know the basics of the @FV function, it is time to use @FV in real models with cell references instead of direct entries into the formula. *Figure 1* includes a template of the college tuition example we've been examining.

Note that the @FV formula in *Figure 1* contains cell references which accommodate any interest rate, term, payment amount, present value, and either beginning or end-of-term deposits.

Using @FV for Lump Sum Transactions

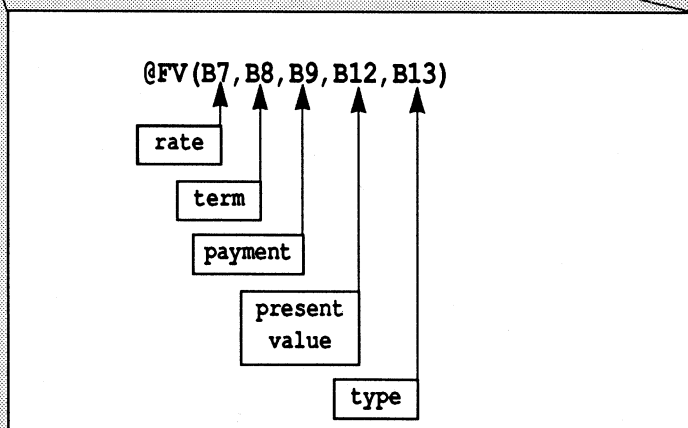
The examples we considered thus far concern annuity transactions, transactions where you either receive or pay equal payments over a period of time. However, you can also use the @FV function to calculate the value of lump sum transactions. For example, consider the following variation on the college savings plan in *Figure 1*.

Imagine that while you discuss college tuition with your child's grandparents, you realize that a single investment made now in a tax-free municipal bond could free you from a lifetime of annual deposits.

Figure 1: College Tuition Saving Example of @FV

File: COLLEGE	REVIEW/ADD/CHANGE	Escape: Main Menu
-----A-----B-----		
1	----- Financing a Newborn's College Tuition -----	
2		
3	(Arrows indicate information requested;	
4	cell B17 contains the future value.)	
5		
6	NECESSARY INFORMATION	
7	Annual Interest Rate (decimal fraction) ----->	.0825
8	Term (number of years) ----->	17
9	Payment amount (one payment per year) ----->	(\$500.00)
10		
11	OPTIONAL INFORMATION	
12	Present value (a negative number or zero) ----->	(\$1,200.00)
13	Type (1 if start of period, 0 if end of period) ----->	1
14		
15		
16		
17	FUTURE VALUE OF THE ANNUITY =====	\$23,304.91
18		

B17: (Value) @FV(B7,B8,B9,B12,B13)
 Type entry or use ⌘ commands ⌘-? for Help



A friend suggests a new tax-free municipal bond which returns 8.25%. You realize that if you make a larger initial deposit you could invest that money now and eliminate the long series of annual deposits.

But how much money do you have to deposit to provide the money you need when your child is ready for college? *Figure 2*, which depicts a variation of the spreadsheet in *Figure 1*, answers that question.

The key to this spreadsheet is the contents of cell B9, which contains a yearly payment of zero. This does not violate the assumptions underlying the @FV function; a steady stream of payments worth

Figure 2: Using @FV to Calculate Lump Sum Transactions

File: COLLEGE	REVIEW/ADD/CHANGE	Escape: Main Menu
=====A=====		
1	----- Financing a Newborn's College Tuition -----	
2		
3	(Arrows indicate information requested;	
4	cell B17 contains the future value.)	
5		
6	NECESSARY INFORMATION	
7	Annual Interest Rate (decimal fraction) ----->	.0825
8	Term (number of years) ----->	17
9	Payment amount (one payment per year) ----->	\$0.00
10		
11	OPTIONAL INFORMATION	
12	Present value (a negative number or zero) ----->	(\$6,000.00)
13	Type (1 if start of period, 0 if end of period) ----->	1
14		
15		
16		
17	FUTURE VALUE OF THE ANNUITY =====	\$23,090.09
18		
B17: (Value) @FV(B7,B8,B9,B12,B13)		
Type entry or use ⌘ commands		⌘-? for Help

under the stated conditions. However, you have to be careful building this model; the monthly interest rate and the number in the "term" cell (there are 48 months in 4 years) can confound even the most experienced spreadsheet user.

Remember that you must express all elements of a financial function in the same time interval. To check your work, examine the payment period and make certain that the other elements of the function are expressed in

nothing is still a steady stream of payments.

What you must do is increase the present value in cell B12 until the future value of the annuity (cell B17) exceeds the future value shown in *Figure 1*. Try various values in cell B12 until the value in cell B17 approximates \$23,304.91, the value in the corresponding cell in *Figure 1*. As you can see from the example in *Figure 2*, depositing \$6,000 today in an investment that pays 8.25% per year yields \$23,090.09 after 17 years. That is about what you would earn by putting an initial payment of \$1,200 in an account that pays 8.25% and depositing \$500 a year for the following 17 years.

A Shorter Term

The transactions we considered so far involve one deposit and one compound period per year. Now we will examine how to use the @FV function to work with transactions that occur monthly, quarterly, or daily.

Imagine that you want to save money to buy a new car. You plan to save \$200 from each month's paycheck, and will deposit the money into a savings account which pays 6.5% per year, compounded monthly. How much money will you have after four years?

The template in *Figure 3* shows that \$200 saved each month becomes almost \$11,000 in four years

the same time interval used for the payments. The example in *Figure 3* expresses the payments in dollars-per-month, so you must express the other elements of the function in months. If the payments are quarterly, then the other elements must also be quarterly, and so forth.

The Adjusted Interest Rate

Although some users have problems adjusting an annual interest rate to other time frames, AppleWorks can do the necessary calculations. To calculate the adjusted interest rate, you divide the annual interest rate by the number of periods in a year. That is, you enter the interest rate, a slash (to indicate division), and the number of periods in a year. For example, if the payment is semi-annual, enter "2", if quarterly, use "4", if monthly, enter "12", if weekly, enter "52". You can do this in a referenced cell or in a formula; AppleWorks automatically handles the necessary calculations.

In *Figure 3*, I entered cell B7 as .065/12. The result appears as .0054167, which is the monthly equivalent of a 6.5% annual interest rate.

The Adjusted "Term"

To adjust the term of a payment for different periods, you must multiply the number of years by the number of periods in each year. That is, you enter

Spreadsheet Tips...

the number of years into the referenced cell or into the formula, an asterisk to signify multiplication, and then a "2" for semi-annual, a "4" for quarterly, and so on. AppleWorks will do all the necessary calculations.

In *Figure 3*, I entered cell B8 as 4*12, which AppleWorks converted to 48 months. You can also use this technique to calculate a future value for partial years; for example, three-and-a-half years is 3.5 times 12, or 42 months.

Changing the Model

These template are easy to change for different situations. Since \$11,000 won't buy a Corvette, you can change the values to explore other alternatives. For example, you can use the template in *Figure 3* to easily determine how much money you will have if you save \$500 per month or get 7.5% interest instead of 6.5%.

More Complex Situations

Unfortunately, not all situations are as "clean" as the model in *Figures 1* and *3*, which have the same number of interest and payment periods. For example, imagine that you put \$100 from your bi-weekly paycheck (26 periods per year) into a savings account with interest that compounds quarterly (4 periods per year). How can you adjust the values and formulas to yield accurate results given this mix of periods?

The answer is to set all values equal to the longer period. In this case, you should adjust the periods so they are all quarterly figures. To do that, divide the interest rate by 4 to calculate the quarterly interest rate, and multiply the term by 4 to determine the total number of quarterly periods. Then multiply the payment amount by 26/4ths to determine the total payments made each quarter. (There are

26 payments throughout the year, so 26/4 is the number of payments made in each quarter.) Thus, for a \$100 bi-weekly payment into a quarterly-compounded account, you should enter the payment cell as 100*26/4.

AppleWorks will display \$650, which is the amount of money that your biweekly deposits would put into the savings account each quarter. These manipulations lead to minor inaccuracies, but the results are reasonable approximations of the correct answer.

Summary

AppleWorks' @FV function is a powerful and useful tool to help you plan your personal financial future. In this article we examined how the @FV function works with annuity, lump sum, and combined transactions. Many readers will recognize the breadth of potential applications of these concepts. For example, @FV can help you determine the income you will receive from rentals and leases. Now I invite you to use the @FV function to peer into your financial future.

[Stan Heckler is on the administrative staff at Michigan State University, East Lansing, Michigan.]

Figure 3: A Monthly Annuity

```

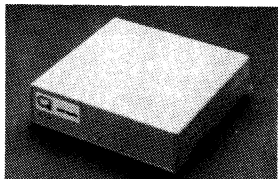
File: COLLEGE              REVIEW/ADD/CHANGE              Escape: Main Menu
=====A=====              =====B=====
1|      -----   Saving for a New Car in 4 Years   -----
2|
3|      (Arrows indicate information requested;
4|      cell B17 contains the future value.)
5|
6|NECESSARY INFORMATION
7|Annual Interest Rate (in this case, .065/12)) ----->          .0054167
8|Term (in this case, MONTHS - 4 years times 12) ----->          48
9|Payment amount (one payment per month) ----->          ($200.00)
10|
11|OPTIONAL INFORMATION
12|Present value (a negative number or zero) ----->          $0.00
13|Type (1 if start of period, 0 if end of period) ----->          1
14|
15|
16|
17|FUTURE VALUE OF THE ANNUITY =====          $10,989.19
18|
-----
B17: (Value) @FV(B7,B8,B9,B12,B13)
Type entry or use ⌘ commands
                                ⌘-? for Help

```

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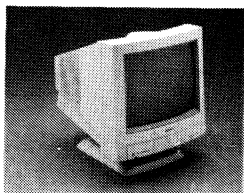
1-800-966-1508 or 1-800-443-6697



QC HARD DRIVE

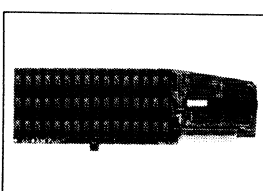
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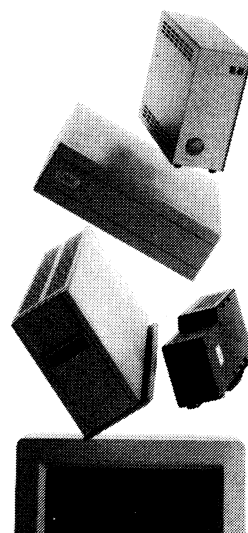
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The AppleWorks Clipboard

by Randy Brandt

This is the sixth in a series of articles that describe the internal workings of AppleWorks 3.0. These articles will help intermediate and advanced AppleWorks users understand why the program behaves the way it does. In this article Mr. Brandt uses the convention of putting a dollar sign in front of any hexadecimal number; thus \$7F means "hexadecimal 7F", which is equivalent to the decimal number 127.

The AppleWorks clipboard is the "glue" that integrates the program's word processor, data base and spreadsheet modules; it is the AppleWorks clipboard that lets the program transfer data between the modules. Other common uses for the clipboard include moving data between files or duplicating information within a file.

The clipboard in AppleWorks 2.1 and earlier could accommodate up to approximately 250 lines, records, or rows. However, enhancements such as Applied Engineering's Super AppleWorks Desktop Expander and Beagle Bros' Triple Clipboard (on the TimeOut PowerPack disk) overcame this limitation. The Expander increased the number of records you could store on the clipboard; Triple Clipboard gave you three separate clipboards.

The early clipboard was also a source of frustration for programmers enhancing AppleWorks; different versions of the AE Expander put the clipboard in different places in memory. One of the design criteria for AppleWorks 3.0 was to enhance the program by letting the clipboard use all available memory and by setting a firm memory location for the clipboard data.

How the Clipboard Works

AppleWorks stores clipboard data in "records"; each record consists of one word processor line, one data base record, or one spreadsheet row. AppleWorks stores the clipboard records on the desktop and creates pointers it uses to access the data.

The format of each clipboard record corresponds to the format for that data in a normal word processor,

data base, or spreadsheet file in memory. That is, word processor lines consist of two bytes containing information about the length and format of the line followed by the actual text. For example, a sample word processor line might look like this:

\$00 \$99 How Information is Stored

If the first number is greater than \$7F, a tab is present in the line. Any remaining values determine how far the text is indented as a result of margin, justification, and/or indenting commands.

The second number indicates the number of characters in the line. If a Return follows the text, AppleWorks adds \$80 to the number. In our example, the "\$99" indicates a string of \$19 characters

(\$99 - \$80 = \$19) followed by a Return. \$19 is equivalent to a decimal 25, thus, there are 25 characters in this line.

Data Base records contain a series of sequential strings, each of which contains a length byte followed by text of the entry in a category. A \$FF marks the end of the record. Hexadecimal length bytes greater than \$7F indicate

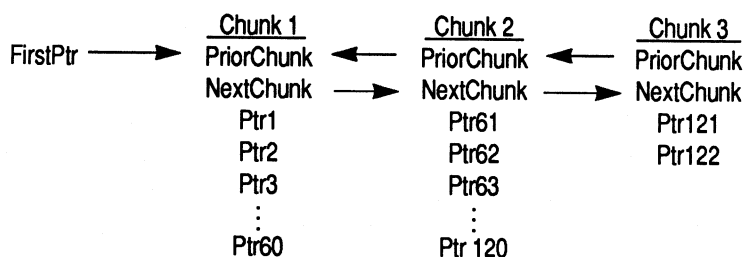
the number of blank categories to skip. For example:

\$07	Beather	length and text for Category 1
\$82		skip 2 categories (\$82 - \$80 = 2)
\$0D	1234 Main St.	length and text for Category 4*
\$FF		end of this record

* (\$0D = decimal 13)

"Understanding the AppleWorks Clipboard can help you anticipate the format your data will take when you transfer information between modules."

Figure 1: Record Storage on the Clipboard



AppleWorks stores spreadsheet rows in a complex format which I will not detail here. The program stores all values as SANE numbers. It then combines these numbers and all text entries with bytes which define all the layout options available in the spreadsheet. The new text string options add a lot of the complexity found in AppleWorks 3.0. [Ed: See the article entitled "Limitations of the AppleWorks Spreadsheet" in the October 1987 issue of the *AppleWorks Forum* for a description of the format earlier versions of AppleWorks used to store spreadsheet data. For more information about SANE, see the sidebar entitled "Standard Apple Numeric Environment" on the following page.]

Chunks and Pointers

When a user copies or moves data to the clipboard, AppleWorks stores up to 60 records of the current type as a "chunk" of memory pointers at a standard location in memory. If you need to store more than 60 records, the program links this first chunk of pointers to any succeeding group. Since AppleWorks stores the memory pointers for the first group at a standard location, any application can follow through the linked list of chunks to access all the data on the clipboard. *Figure 1* presents an example of how AppleWorks would store 122 records on the clipboard.

In *Figure 1*, PriorChunk is the memory pointer for the previous chunk of clipboard records. NextChunk points ahead to the following chunk. Ptr1, Ptr2, Ptr3, etc., are the memory pointers for the actual data on the clipboard.

With this approach, you can store any number of chunks on the clipboard as long as there is sufficient room in desktop memory.

Converting Data

Unlike earlier versions of AppleWorks which could not transfer clipboard data between modules, AppleWorks 3.0 can paste clipboard data from any module into any other module. Since AppleWorks stores the data from each module in a different format, the program must convert the data between formats.

The necessary conversion routines are in the "Copy/move from clipboard" segment of the program code within each module. This portion of AppleWorks scans through each group of records, converts the data, and adds it to the current file.

Word processor to word processor / spreadsheet to spreadsheet: When you copy or move data from one word processor document to another or from one spreadsheet to another, AppleWorks duplicates the clipboard information without any conversion.

Data base to data base: When you move data base records from the clipboard, AppleWorks simply transfers the memory pointers from the clipboard to the file. This approach is fast, but not flexible.

When you copy records from the clipboard, AppleWorks swaps the categories to preserve the original screen order in the new file's layout. Thus, you can rearrange the order of the categories on the multiple record layout screen, copy the data to the clipboard, change to a new layout, and copy the records back into the newly organized file. This technique, which lets you change the sequence of data in a record, does not work with earlier versions of AppleWorks (which do not change the order of categories in memory).

Word processor to data base: The data base module treats each word processor paragraph as a record; each tab in the paragraph defines a new data base category. That is, the program transfers the following two "paragraphs" as two separate records, each with entries in the first five categories:

Erika^	Brandt^	Arvada^	Colorado^	80003
Heather^	Brandt^	Arvada^	Colorado^	80003

The conversion from word processor to data base is simple in theory because it involves only text characters. However, the complexities involve checking

Standard Apple Numeric Environment

SANE, an acronym for "Standard Apple Numeric Environment", is a system for working with floating point numbers; numbers that are not simple whole numbers. The SANE routines handle mathematical functions such as addition, subtraction, division, multiplication, square roots, and logarithms and let the spreadsheet manage up to seven decimal places. See the article entitled "How AppleWorks Handles Arithmetic Operations" in the *AppleWorks Handbook: Volume Two* for more information about SANE.

for excessive categories, categories that are too long, and other limit-related factors.

Word processor to spreadsheet: AppleWorks converts each word processor paragraph into a spreadsheet row; the program changes to a new column each time it encounters a tab. A Return tells AppleWorks to move to the next row and continue the conversion.

Data base to spreadsheet: Each data base record becomes a spreadsheet row; AppleWorks stores each category in a successive column.

Data base to word processor: Each data base record becomes a separate word processor paragraph; AppleWorks inserts a tab between each category.

Spreadsheet to word processor: Since AppleWorks stores spreadsheet values as SANE numbers, transferring spreadsheet data into word processor lines requires AppleWorks to convert the SANE numbers into text. The SANE routines are not normally available to the word processor; AppleWorks must load those routines into memory to accomplish these conversions. Then AppleWorks 3.0 converts each row into a paragraph with each column separated by a tab.

Spreadsheet to data base: Converting spreadsheet information into data base records also requires the conversion of SANE into text. Since the data base uses SANE for calculated formulas and totals in reports, AppleWorks simply loads the SANE routines into memory and performs the conversions. Each spreadsheet row becomes a data base record with each column becoming a different category. Apple-

Works ignores any extra data if you have more spreadsheet columns than data base categories.

Conclusion

This month you learned how AppleWorks stores data in memory and how the AppleWorks clipboard converts data between modules. Understanding the conversion process can help you anticipate the format your data will assume when you transfer information between modules.

[Randy Brandt, an author of AppleWorks 3.0, is the owner of JEM Software, publishers of AppleWorks enhancements such as DoubleData and TotalControl. He is also the developer of TimeOut UltraMacros and many other TimeOut modules.]

NAUG BBS

Congratulations to Douglas Gum of Mahomet, Illinois, the 45,000th caller to the Electronic Forum, NAUG's AppleWorks bulletin board. Mr. Gum won a one-year extension to his NAUG membership. Call the Electronic Forum for help with AppleWorks or to download templates, fonts, or utility programs. A free service of NAUG. (313) 736-8102.

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Menus that Control Subdirectories

by William Neef

AppleWorks 3.0 makes it easier to manage subdirectories on 3.5-inch disks and hard disks, but the process of switching between directories still involves many key-strokes. Careful maintenance of separate subdirectories is particularly important in an environment where multiple users store documents on the same hard drive or where a single user keeps important files in different subdirectories.

The Dan Muehsam family of Swedesboro, New Jersey, shares an Apple II system, and family members often did not save their work in their own subdirectories. So Mr. Muehsam wrote a macro that sets the AppleWorks' pathname to the appropriate subdirectory.

How the Macro Works

Figure 1 presents the screen this macro displays when you launch an UltraMacros-enhanced copy of AppleWorks. The screen consists of two components: a series of messages that appear at the top and bottom of the work area, and a menu that appears between those messages. The macro begins by clearing the screen, sounding the bell, and displaying the non-menu messages. Then the macro builds the menu.

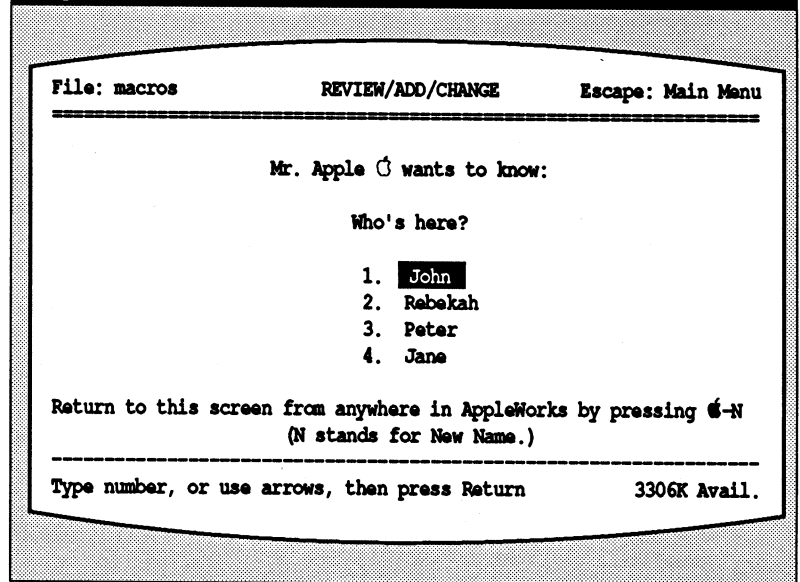
Building the Menu

The lines `<poke #menuhor,32>` and `<Z=8>` set the horizontal and vertical positions for the menu. The next four lines include the text for the menu.

UltraMacros stores the user's response in variable Z and sets Z equal to zero if the user presses the Escape Key. Thus the line `<if Z = 0 : then : oa-Q : esc : stop>` tells UltraMacros to return to the AppleWorks Main Menu and stop if the user pressed the Escape Key.

The remainder of the macro determines which menu choice the user selected and sets the current

Figure 1: Pathname Control Menu



pathname to /Hard2/Kids/ followed by "John", "Rebekah", "Peter", or "Jane".

Customizing the Macro

As written, the macro supports up to four different users with each user's files stored in a separate subdirectory. You can revise the macro to make it easy for a single user to switch between directories. For example, replacing the children's names with "Word Processor", "Data Base", "Spreadsheet", and "Finances" lets you switch between those four subdirectories on a hard disk partition.

How to Automatically Launch the Macro

Follow these procedures to tell UltraMacros to automatically launch this or any other macro in your macro set:

1. Put the macro you want to launch at the beginning of the macro set immediately after the "start" token.
2. Enter an Apple-Escape and select "Macro Options" from the TimeOut Menu.

Figure 2: Macro that Provides Menu-Driven Pathnames

```

start
N:<all :                               { Define the macro.                               }
cls : bell :                           { Clear the work area of the screen and sound the bell.   }
msgxy 26,3 :                           { Start the next message in the 26th column of the 3rd line. }
msg "Mr. Apple " + &A& + " wants to know :" : { Display this message. &A& displays a mousetext Open-Apple. }
msgxy 33,5 :                           { Start the next message in the 33rd column of the 5th line. }
msg "Who's here?" :                   { Display this message.                                     }
msgxy 7,20 :                           { Start the next message in the 7th column of the 20th line. }
msg "Return to this screen from anywhere in AppleWorks by pressing " + &@& + "-N" :
{ Display this message. &@& displays a mousetext Open-Apple.   }
msgxy 27,21 :                           { Start the next message in the 27th column of the 21st line. }
msg "(N stands for New Name.)" :       { Display this message.                                     }
poke #menuhor,32 :                     { Set the horizontal position of the menu to column 32.     }
Z = 8 :                                { Start the menu on line 8.                                  }
menu "John" :                           { This is the 1st menu item. Customize for your use.        }
menu "Rebekah" :                       { This is the 2nd menu item. Customize for your use.        }
menu "Peter" :                         { This is the 3rd menu item. Customize for your use.        }
menu "Jane" :                          { This is the 4th menu item. Customize for your use.        }
if Z = 0 : then : oa-Q : esc : stop :   { If user pressed Escape Key go to Main Menu and stop the macro. }
else :                                  { If the user did not press the Escape Key...                }
if Z = 1 : then $1 = "John" :           { ...if the user chose item #1, store "John" in variable $1. }
else :                                  { If the user did not choose item #1...                       }
if Z = 2 : then $1 = "Rebekah" :        { ...if the user chose item #2, store "Rebekah" in variable $1. }
else :                                  { If the user did not choose item #2...                       }
if Z = 3 : then $1 = "Peter" :          { ...if the user chose item #3, store "Peter" in variable $1. }
else :                                  { If the user did not choose item #3...                       }
if Z = 4 : then $1 = "Jane" :           { ...if the user chose item #4, store "Jane" in variable $1 }
endif :                                { End the "if" statement.                                     }
msgxy 0, 128 :                          { Reset the message location to the default for future messages. }
oa-Q : esc                               { Go to the AppleWorks Main Menu.                            }
>5<rtm :                                { Select "Other Activities".                                  }
rtm :                                    { Select "Change current disk drive or ProDOS prefix".        }
up :                                     { Highlight "ProDOS directory", the last choice on the menu.  }
oa-rtm :                                { Enter an Open-Apple-Return to display the current ProDOS prefix. }
oa-Y :                                  { Clear the displayed prefix.                                  }
print "/Hard2/Kids/" + $1 :              { Display the prefix /Hard2/Kids/ followed by the child's name. }
rtm : esc>!                             { Enter the prefix, go to the Main Menu, and end the macro.   }

```

3. Select choice #3, "Save macro table as default set", from the Macro Options Menu.
4. Respond "Y" to the "Activate auto startup macro?" prompt.

UltraMacros will now automatically start the first macro each time you launch AppleWorks. You can also activate the macro with a keystroke from within AppleWorks; a user need only enter a <sa-N> to return to the Set Pathname Macro. Even if you are the sole user of your computer, you will find that Mr. Muehram's macro is a useful template for a menu-driven startup macro.

[William Neef is a retired purchasing agent for Welding Metals, Inc. and is Treasurer of the Apple

Jackson (Mi) Users Group. Dan Muehsam is supervisor of the Operating Budget System at the Philadelphia Electric Company.]

This is my last month as editor of NAUG's "My Favorite Macro" series. Serving in this capacity was a most enjoyable and educational experience. I hope you enjoyed the articles; I must share credit with the authors of the macros and to the many submitters whose fine macros I was unable to publish.

Next month I pass the responsibility for this series to the capable Keith Johnson of the University of Nevada; I sent Mr. Johnson the complete collection of unpublished macros. However, I always stand ready to help; please write or phone me with your questions.

William Neef; 4848 Wolf Lake Road; Grass Lake, Michigan 49240; (517) 522-4689

Using Large RamFactor Cards

By John Link

AppleWorks 3.0 limits you to using only the first two megabytes of memory on a RamFactor card. In this article, AppleWorks expert John Link describes a patch that lets you use all the memory on the card.

There are three types of memory expansion cards for Apple II computers: Peripheral slot cards (also called “slinky” cards), auxiliary slot cards, and Apple IIGS memory slot cards. Popular peripheral slot cards include Apple’s Memory Expansion Card and Applied Engineering’s RamFactor and RamExpress cards. The most popular auxiliary slot card is Applied Engineering’s RamWorks card. Many manufacturers supply Apple IIGS memory slot cards. [Ed: The sidebar entitled “Memory Cards: Which Type Do You Own?” on page 8 of the February 1990 issue of the *AppleWorks Forum* classifies the different brands of peripheral slot, auxiliary slot, and IIGS memory cards.]

Peripheral slot cards have two advantages. First, they are compatible with both Apple IIe and IIGS computers. Second, peripheral slot cards automatically configure themselves as a “RAM disk” when you boot your computer.

Unfortunately, Apple never anticipated that Apple II owners would want more than two megabytes of memory in their computers. As a result, the Apple standard for peripheral slot cards only tells manufacturers how to design the first two megabytes of memory on the card. By definition, any peripheral slot card with more than two megabytes of RAM is a non-standard card. Thus, RamFactor owners with more than two megabytes of memory have non-standard cards.

The developers of AppleWorks 3.0 designed the product for standard cards. As a result, AppleWorks 3.0 does not let you use the full power of a large RamFactor because (a) the program cannot use more than two megabytes of RamFactor memory for the AppleWorks desktop, and (b) AppleWorks 3.0 will not let you use the extra memory on the card as a RAM disk. In fact, if you copy one or

RAM Disks — What Are They?

A RAM disk is a section of memory that emulates a disk drive. RAM disks work up to 20 times faster than floppy disks, thus programs stored on RAM disks load and often run significantly faster than programs stored on floppy disks. For example, the AppleWorks 3.0 spelling checker runs more than ten times faster from a RAM disk than from a floppy disk. You can use any file copy program to copy programs and data from a floppy or hard disk onto a RAM disk.

more programs onto the card before launching AppleWorks, the program crashes to the monitor level during the launch and you must reboot the computer to recover.

Most owners simply accept that they cannot use a RAM disk with a large RamFactor card when running AppleWorks 3.0. RamFactor owners who want a RAM disk remove all but two megabytes of memory chips from the RamFactor. Then they can use the remaining two megabytes of memory to serve as both a RAM disk and for the AppleWorks desktop. As you might imagine, I was not happy with either solution.

How the Patch Works

If you have more than two megabytes of memory on your RamFactor, AppleWorks crashes if it finds anything occupying the first blocks of memory on the card. Fortunately, I found an exception to this rule: AppleWorks 3.0 launches perfectly as long as the file SYS.DESKTOP (AppleWorks’ own desktop work file) remains on the RAM disk.

Using that information, I developed a patch that prevents AppleWorks from deleting SYS.DESKTOP when you quit the program. That reserves the crucial first blocks of the RamFactor for Apple-

How to Launch BASIC

Follow these steps to prepare a boot disk that loads ProDOS and puts you into BASIC. You will need a blank disk, a disk utility program such as TimeOut FileMaster, Copy II+, or Apple's System Utilities, and a disk that contains recent versions of the files PRODOS and BASIC.SYSTEM. *[Ed: Apple's new 8-bit System Utilities Disk in NAUG's Public Domain Library includes the latest versions of all the necessary files.]*

1. Use a disk utility program to format a blank disk. Name the disk BASIC.
2. Use any file copy program to copy the files PRODOS and BASIC.SYSTEM onto your new BASIC disk. (Reasonably current versions of PRODOS appear on your AppleWorks 3.0 Start-up Disk and on the new Apple System Utilities Disk. BASIC.SYSTEM is not on the AppleWorks disk but is on most Apple System Utility disks, older TimeOut disks, and many other program disks.
3. Boot your computer with the new BASIC disk. The BASIC prompt character (`)` will appear on the screen. You are now in BASIC and are ready to install the RamFactor patch.

Works. Each time you launch AppleWorks, it uses those blocks to construct its desktop and does not mind having the original SYS.DESKTOP file on the card. As a result, you can use the RamFactor both as a RAM disk and as a source of memory for the AppleWorks desktop.

Users who are uncomfortable installing this patch from BASIC can use SuperPatch 7.0 to install and de-install the patch automatically. SuperPatch also will determine if your memory card benefits from the patch.

Installing the Patch

Follow these steps to install the patch:

1. Get into BASIC and get the BASIC prompt (`)` on your screen. See the sidebar entitled "How to Launch Basic" if you do not know how to get into BASIC on your computer.
2. Insert a backup copy of the AppleWorks 3.0 Start-up Disk in a drive.

3. Type PREFIX /APPLEWORKS (or the complete pathname to your copy of AppleWorks) and press the Return Key.
4. Type the following (press the Return Key after typing each line):

```
POKE 768,234
POKE 769,234
POKE 770,234
POKE 771,234
POKE 772,234
POKE 773,234
BSAVE SEG.AW,TBIN,A$300,L6,B$67AF
```

5. If you use a 5.25-inch disk version of AppleWorks, use a file copy program and copy the patched SEG.AW file onto every AppleWorks disk except the dictionary disk.

How to Restore AppleWorks

You can restore AppleWorks to its original condition by launching BASIC, entering the prefix for your AppleWorks disk, and typing the following:

```
POKE 768,32
POKE 769,0
POKE 770,191
POKE 771,193
POKE 772,3
POKE 773,89
BSAVE SEG.AW,TBIN,A$300,L6,B$67AF
```

How to Use the RamFactor's Entire Memory

Using all the memory on your RamFactor card is now relatively simple. Follow these steps every time you boot your computer:

1. Launch your patched version of AppleWorks and then quit AppleWorks. That will leave the file SYS.DESKTOP on your RAM disk.
2. Use any file copy program to copy the patched version of AppleWorks (including the spelling dictionaries) and any other files you want to store onto the RAM disk.
3. Launch AppleWorks from the RamFactor card. AppleWorks launches faster and spell checking is significantly faster from the RamFactor than from a floppy or hard disk.

Advanced Techniques...

You can install or de-install your other favorite patches on the copy of AppleWorks on your RAM disk with no adverse effects. In addition, SuperPatch and the AW 3.0 Companion both offer a patch that limits the size of the desktop created by AppleWorks. If you install this patch, make certain that you increase the size of the desktop before you first establish SYS.DESKTOP.

Automating the Procedure

You must repeat this process every time you power up your computer. However, there is a way to automate these steps so you can automatically reconstruct the files on your RAM disk. The idea is to make an "image" backup of the entire card and use the "Restore" program supplied with the backup utility to rebuild the data on the card. EasyDrive, RamUp, and ProSel-8 have the required image backup and restore programs.

Each of these programs also lets you automate the backup and restore process. That lets you automatically rebuild the files on your RAM disk when you boot your computer. I suggest that you consult the EasyDrive, RamUp, or ProSel-8 documentation for the necessary steps.

Make certain that you do not use a utility such as Apple's Backup II or ProSel-16; those programs provide "file-by-file", not "image", backups. Unfortunately, using file-by-file procedures may not "reserve" the correct blocks on the RamFactor card.

Better yet, consider making the image backup as described above and then leaving your computer on. Computer service people tell me that your system will last longer if you leave it on than if you turn it off and on. Anything that goes wrong usually happens when you turn on your computer. You must make your own decision here, but leaving the system on means you will only need to restore the software on your RamFactor when there is a power failure.

[John Link is a Professor of Art at Western Michigan University. He is the developer of SuperPatch and is an AppleWorks consultant.]

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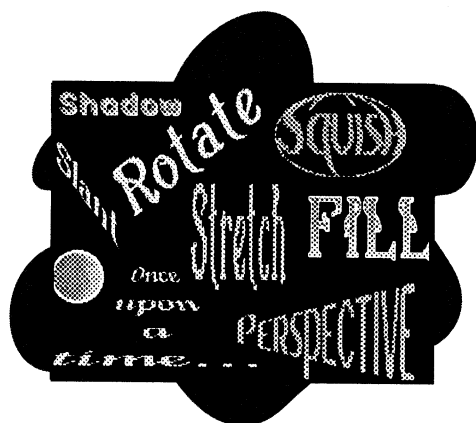
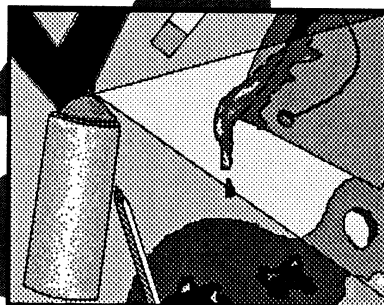
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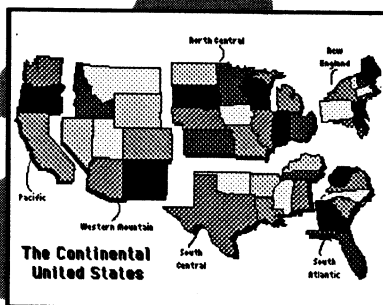
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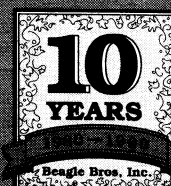
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Current TimeOut Version Numbers

by Cathleen Merritt

Beagle Bros has produced so many TimeOut enhancements to AppleWorks that it is difficult to keep track of the current version of each product. This article will help you determine if you have the latest release of your favorite program.

The Numbering System

Beagle assigns a version number to each disk and updates that number when the product undergoes a major revision. *Figure 1* contains the version numbers for all 18 TimeOut disks. Beagle often makes minor updates to one or more modules on a disk without changing the disk number. *Figure 2* lists the version number for each file on every disk.

Which Version Do You Own?

You can determine the version number of a TimeOut disk by booting the computer with the disk. The version number appears at the bottom of the title screen. I suggest that you write the version number on the disk label.

You must use the TimeOut Utilities from within AppleWorks to determine the version number of each TimeOut module. Proceed as follows:

Figure 1: Disk Version Numbers — December 1990

AW 3.0 Companion*	1.3	MacroTools II	1.3	SuperFonts	3.1
DeskTools	3.1	Outliner*	1.1	SuperForms	1.0
DeskTools II	2.0	Point-to-Point*	4.1.1	TeleComm	1.2
FileMaster	3.0	PowerPack	2.0	TextTools	1.3
Graph	3.1	QuickSpell	3.0	Thesaurus	2.0
GS Font Editor*	1.2	ReportWriter	2.51	UltraMacros	3.1
MacroEase	1.1	SideSpread	3.0		
MacroTools	2.3	SpreadTools	2.0		

*Not a TimeOut module — Get updates from Beagle.

Figure 2: Module Version Numbers — December 1990

On Multiple Disks		Graph		SuperFonts	
TO.UTILITIES	3.0	TO.GRAPH	3.1	TO.SUPERFONTS	3.0
TO.CLIPBOARD	2.0			TO.PICKFONTS	1.0
TO.PAINT	2.1	MacroEase		SuperForms	
TO.WORD.COUNT	2.0	TO.DEBUG	3.0	TO.SUPERFORMS	1.0
Companion		TO.EASY.LAUNCH	1.0	TeleComm	
TO.TEXTLOADER	1.1	TO.PRIMER.REF	3.1	TO.TELECOMM	1.2
TO.PATHOLOGIST	1.1	TO.REFERENCE	3.0	TextTools	
TO.PATHMAN	1.0	TO.STATUS	3.0	TO.ANALYST	1.2
DeskTools		TO.ULTRALOCK	3.0	TO.COPYBLOCK	1.1
TO.CALENDAR	3.2	PowerPack		TO.GLOSSARY	1.1
TO.CALCULATOR	1.0	TO.ASCII	1.1	TO.INDEXER	1.2
TO.CASE CONVERT	2.0	TO.AWP.TO.TXT	3.0	TO.MARKMERGE	1.2
TO.ENCRYPTER	2.0	TO.DB.SEARCH	3.0	TO.MULTIPRINT	1.1
TO.CLOCK	1.1	TO.DESK.SORTER	3.0	TO.QUICKSTYLES	1.1
TO.DIALER	1.1	TO.HELPSCREENS	3.0	TO.QUICKTABS	1.1
TO.ENVELOPE.ADR	2.0	TO.LIBRARIAN	3.0	TO.STRIPPER	1.1
TO.NOTEPAD	2.0	TO.LINESORTER	3.0	TO.SUPERFIND	1.2
TO.PAGE.PREVIEW	1.0	TO.SELECTOR	3.0	TO.TOC	1.1
TO.PUZZLE	1.1	TO.TRIPLE.CLIP	3.0	Thesaurus	
DeskTools II		TO.TRIPLE.DESK	3.0	TO.THESAURUS	2.0
TO.FILE.SEARCH	3.0	QuickSpell		UltraMacros	
TO.DIRECTREE	2.0	TO.QUICKSPELL	3.0	TO.COMPIILER	3.1
TO.CLIP.VIEWER	2.0	Report Writer		TO.MACRO.OPT	3.1
TO.AREACODE	2.0	TO.REPORTWRITER	2.51	TO.HELP.V2.0	3.0
TO.CALC.PLUS	2.0	SideSpread		TO.HELP.V3.0	3.0
TO.DISK.TESTER	1.0	TO.SIDESPREAD	3.0		
TO.MEASURE	2.0	SpreadTools			
TO.PM.IMAGE	2.0	TO.ANALYZER	2.0		
TO.SCREENOUT	1.0	TO.CELLINK	1.2		
TO.SCREENPRINT	1.0	TO.BLOCKCOPY	2.0		
TO.STOPWATCH	2.0	TO.QUICKCOL	2.0		
FileMaster		TO.COPYRC	2.0		
TO.FILEMASTER	3.0	TO.FRM2VAL	2.0		

1. Launch a TimeOut-enhanced copy of AppleWorks.

Figure 3: JEM Software — Dec. 1990

Product	Version	Product	Version
DoubleData	1.5	Mr. Invoice*	2.0
FlexiCal	1.3	SpellCopy	2.2
PathFinder	3.0	MiniPaint	1.1
I.O. Silver	1.0		

*Upgrades only from JEM - \$10. Available Jan. 1991

2. Enter an Apple-Escape to access the TimeOut Menu.
3. With the TimeOut Menu on the screen, select "Utilities".
4. Select choice #8, "List version numbers". A list of the version number of each module will appear on the screen.

Getting the Current Disks

NAUG members who own earlier versions of the TimeOut programs can update to the current versions by contacting one of NAUG's Beagle Buddies:

Bruce Shanker, 1279 Boyd Road, Warminster, PA 18974-2260.

Oliver Roosevelt, 175 Gordon Drive, Spartanburg, SC 29301.

Joe Connelly, 32148 Camborne Lane, Livonia, MI 48154.

Pete Ross, 35026 Currier, Wayne, MI 48184.

Jim Emig, 4535 S.E. Kelly Street, Portland, OR 97206.

Include your NAUG membership number from the mailing label on this issue of the *AppleWorks Forum*, your original TimeOut disk(s), and payment of \$2.50 for the first 5.25-inch disk and \$1 for each additional 5.25-inch disk, or \$3 for the first 3.5-inch disk and \$2 for each additional 3.5-inch disk.

Canadian Members

Canadian members can get Beagle Updates from NAUG's Canadian Beagle Buddy, John Carson, 215 Cedar Avenue, Rosemere, Quebec J7A 2W5. Canadian prices are \$3.25 for the first 5.25-inch disk and \$1.50 for each additional disk; \$3.75 for the first 3.5-inch disk and \$2.25 for each additional 3.5-inch disk.

JEM Software Updates

Bruce Shanker also updates the AppleWorks enhancements from JEM Software. (Figure 3 lists the current version numbers for the JEM Products.) JEM updates cost an additional dollar per disk.

How to Number Data Base Records

by Warren Williams

Many data base applications require a sequential number in each record. Consider, for example, data base files that include invoices or check numbers.

In this article, I will describe one way to insert a sequential number in every data base record. The process is not difficult, but requires you to transfer the records from the data base file into the spreadsheet module, use the spreadsheet to add the sequential number to each record, and then transfer the data back into the data base. I will assume that you use AppleWorks 3.0. If you use AppleWorks 2.0 or 2.1, TimeOut Data Converter (TO.CLIPBOARD) lets you make the necessary transfers between the two modules. I will describe the simplest possible example, a data base with two categories (RECORD NUMBER and LAST NAME); you can generalize these procedures to any data base file.

Step-By-Step Procedures

1. Enter all the necessary data into the data base, but leave the RECORD NUMBER category blank.
2. Use the Apple-A command to arrange the records in any order you desire; for example, in alphabetical order by last name.
3. Issue an Apple-S command to save your work. You are about to manipulate the records in the file and want to be able to recover your work if you make a mistake.
4. If you want to insert numbers into every record, you must insert an extra record into the file. (AppleWorks will not let you move every record out of a data base file.) Issue an Apple-1 to get to the beginning of the file, an Apple-I to get into Insert Mode, and enter an "X" into the RECORD.NUMBER category. Then press the

Data Base Tips...

- Escape Key to return to Review/Add/ Change mode.
5. Display the data in multiple record layout. If the RECORD NUMBER category is not on the screen, issue an Apple-L command and move that category to the left edge of the screen.
 6. Issue an Apple-R command and select the records you want to move to the clipboard. For example, select all records where the RECORD NUMBER category is blank.
 7. Put the cursor on the first record you want to number, issue an Apple-M command, and indicate that you want to move "To clipboard". Then issue an Apple-9 command to highlight all the records you selected and press the Return Key.
 8. Press the Escape Key to return to the Main Menu, indicate that you want to create a new spreadsheet file "From scratch", and name the file.
 9. With the blank spreadsheet on the screen, issue an Apple-M and move the data "From clipboard". The data base records will appear on the spreadsheet screen. Don't format the columns in this spreadsheet; all the data is there, even if the columns are too narrow.
 10. Put the cursor in the first cell in the blank column that will contain the record numbers. Enter the starting number you want assigned to the first record. Then press the Down-Arrow Key.
 11. Enter the formula that will add "1" to that first value. For example, if the RECORD NUMBER category is in column A, enter the formula "+A1+1" in cell A2.
 12. Move the cursor to the next blank cell, issue a Copy Command, and copy the formula into all the remaining records. Make the cell reference "Relative".

Now that you entered the desired value into each record, it is time to move the data back into the data base. Proceed as follows:

13. Put the cursor in cell A1, issue an Apple-M, select "To clipboard", and indicate that you want to move "Rows".

14. Issue an Apple-9 command to highlight all the rows and press the Return Key.
15. Issue an Apple-Q command to return to the original data base file. Then issue an Apple-M and move the data from the clipboard back into the file.
16. Delete the extra record you entered in step #4 and examine the data to insure that everything is correct. Then issue an Apple-R command to select all the records and an Apple-S command to save your data.

Although there are many steps in this operation, the procedure itself is easy. TimeOut UltraMacros lets you automate this process and accomplish the transfer with one or two keystrokes.

[Dr. Warren Williams is on the faculty at Eastern Michigan University where he teaches courses in the Educational Technology program. He is the President of NAUG and is a frequent contributor to the AppleWorks Forum.]

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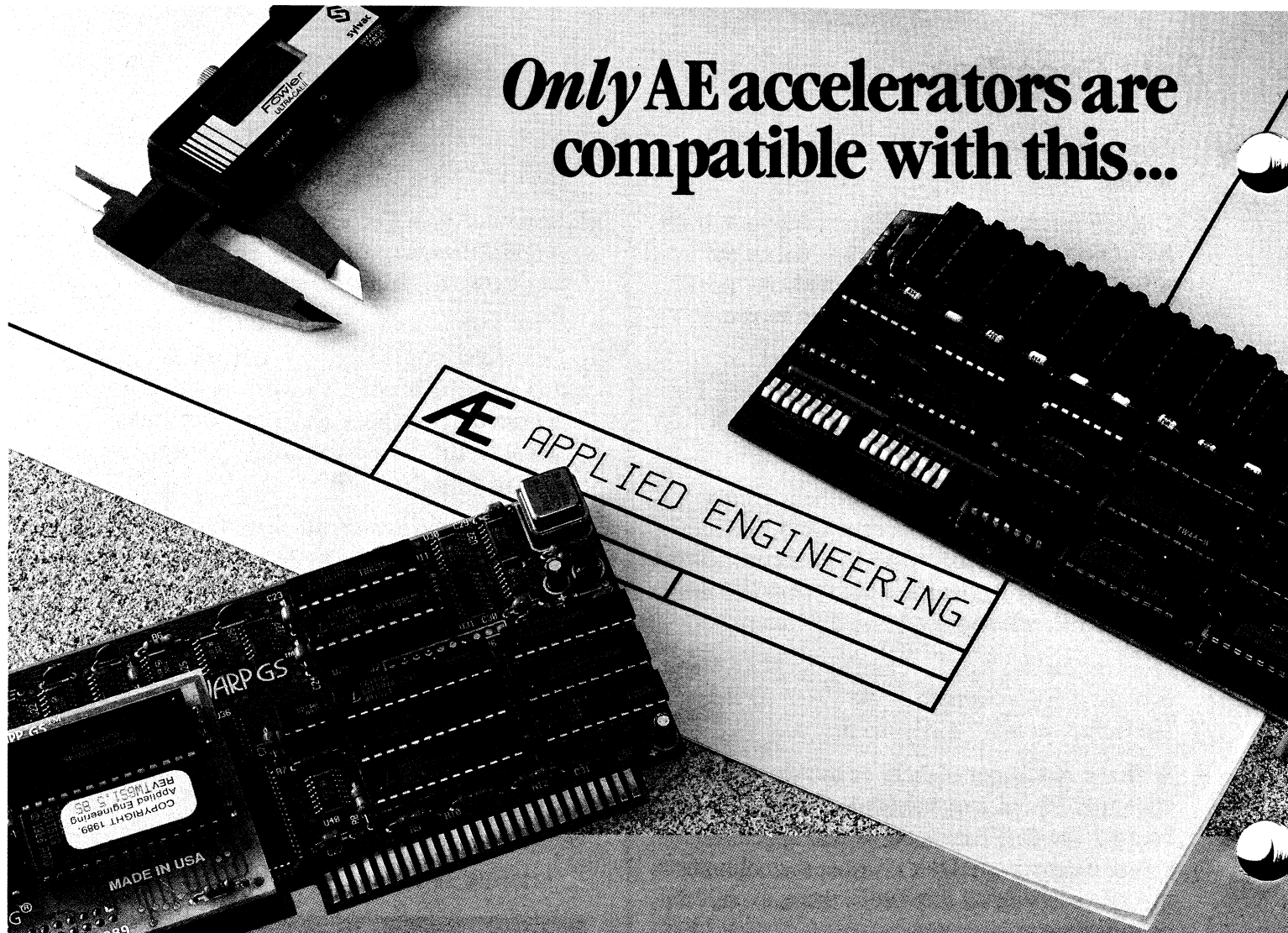
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Both TransWarp and TransWarp GS were designed with future upgrades in mind (note the 40 pin high speed buss connector on TransWarp GS). That's why Apple owners who expand and enhance their computers with Applied Engineering products have far fewer compatibility and performance problems than those who try to "mix and match." But should you ever have a question,

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Late News for AppleWorks Users

NAUG

NAUG recently expanded its Beagle Buddy program to include a Beagle Buddy on the West Coast. Members can now get updates to the latest TimeOut products from Jim Emig, 4535 S.E. Kelly Street, Portland, Oregon 97206. A complete list of NAUG's Beagle Buddies and the current TimeOut version numbers appears on page 21 of this issue of the *AppleWorks Forum*.

NAUG recently extended its special price offer for Beagle Bros' Outliner program for AppleWorks. The list price for Outliner is \$69.95. While current supplies last, members can purchase the program directly from NAUG for \$29.95 plus \$3 s/h. NAUG accepts Visa and MasterCard. [NAUG, Box 87453, Canton, Michigan 48187; (313) 454-1115.]

Apple Computer

Apple Computer recently announced the introduction of three new Macintosh computers. The Macintosh Classic is an inexpensive, slot-less system that is comparable to the now-discontinued Macintosh SE. The Classic, which includes a built-in 9-inch black and white screen, uses a Motorola MC68000 processor operating at 7.8 megahertz and comes with either one or two megabytes of memory (expandable to four megabytes). The Classic lists for \$995 with two floppy disk drives and one megabyte of memory, and \$1,499 with a floppy disk, a 40-megabyte hard drive, and two megabytes of RAM. Educators can purchase the \$1499 unit from Apple dealers for \$1199; ask for Apple's "Educator Advantage Program".

The Macintosh LC, with a suggested list price of \$2,495 (including a 40-megabyte hard drive, two megabytes of RAM, and a keyboard but no monitor), is Apple's lowest cost color-capable Macintosh. A 12-inch color monitor for the LC lists for \$599.

The LC, which is built around a Motorola 68020 processor running at 16 megahertz, is the only Macintosh that can accept Apple's new \$245 Apple IIe emulation card that lets you run AppleWorks

and other 8-bit Apple software (but not 16-bit programs like AppleWorks GS). NAUG recently ran AppleWorks on an emulator-equipped LC. The program ran well and looked just like AppleWorks on any other Apple, although we had to get used to the unusual placement of the Escape Key to the right of the space bar. The Apple IIe emulator provides approximately 250K of desktop memory for AppleWorks.

Apple expects to start delivering Macintosh LC's to dealers in January and should have the Apple IIe emulators available in March. As of this writing in mid-November, Apple had not released a special educator price for the LC and IIe emulator.

The Macintosh IIsi is the company's lowest cost Macintosh II computer. Built around a Motorola 68030 processor operating at 20-megahertz, the IIsi runs Macintosh programs up to five times faster than the Macintosh Classic. A IIsi with a color monitor, two megabytes of RAM, a 40-megabyte hard drive, and a standard keyboard lists for \$4,897 and is available to educators for \$3,045.

NAUG will leave it to the Macintosh publications to provide the technical details of these systems. However, we will publish articles that will help members run AppleWorks on Apple IIe-emulator-equipped Macintosh LC systems.

Apple also responded to user concerns by announced the availability of a new telephone Customer Assistance Center. The center was established to help if your regular Apple support source cannot answer your question or solve your problem. Apple states that "the Customer Assistance Center is not a technical support hotline"; you must first try to get answers to your technical questions from your local dealer or Apple representative. However, the staff at the Center will be equipped to answer questions about Apple and third-party products when the usual support channels cannot resolve your problems. You can reach the Customer Assistance Center at (800) 776-2333 Monday through Friday from 6am to 5pm Pacific time.

[Apple Computer, Inc. 20525 Mariani Avenue, Cupertino, California 95014; (408) 996-1010.]

Clariss Corporation

Clariss Corporation recently installed a voice messaging system designed to help AppleWorks and AppleWorks GS users get answers to technical questions about these products. The 24-hour system answers the 230 most commonly asked questions about installing, enhancing, and using the two AppleWorks products. Users must call from a touch tone telephone. [Clariss Corporation; (800) 735-7393.]

Dan Crutcher

NAUG member Dan Crutcher recently announced the release of Dan's Macro City, a collection of some of Mr. Crutcher's most popular macros. Dan's Macro City includes CheckWorks, Hangman, Workhorse, BoxDraw, LinePrinter, Alarm, Miscellaneous, and CR.ZAP. A description of these macros appears in an advertisement on the back cover of this issue of the *AppleWorks Forum*.

Until January 31, 1991, NAUG members can purchase the complete collection of Macro City macros for \$15 plus \$1 s/h. This represents a 30% discount from the regular \$22 package price. You must identify yourself as a NAUG member and include your NAUG membership number with your order. [Dan Crutcher, 322 Stilz Avenue, Louisville, Kentucky 40206; (502) 895-2720.]

H & K Technologies

NAUG members who use TimeOut UltraMacros can now get a free Macro Mastery Chart directly from H & K Technologies. The Macro Mastery Chart includes a convenient list of the UltraMacros commands and built-in functions. For a free copy, send H & K a self-addressed, stamped #10 envelope and specify whether you use AppleWorks 2.x or 3.x.

H & K also offers NAUG members a discount on a heavy-duty version of the Macro Mastery Chart. The heavy-duty chart mounts directly on your keyboard and makes it easy to locate important information about UltraMacros. The keyboard version of the Macro Mastery Chart usually costs \$9.95,

however until January 15, 1991, NAUG members can buy the chart directly from the company for \$7.95 plus \$1.50 s/h. Specify whether you have an Apple IIc or IIc Plus, an original beige IIe keyboard, a platinum IIe keyboard, or an Apple IIGS and whether you use AppleWorks 2.x or 3.x. H & K Technologies offers a money back guarantee on all their products. [H & K Technologies, Box 742, Bowling Green, Ohio 43402.]

Kingwood Micro Software

Kingwood Micro Software announced the release of Spelling Teacher for AppleWorks 3.0, a set of macros that helps teach correct spelling. Spelling Teacher highlights and marks all unknown words in an AppleWorks document, prints the document with a summary of unknown words, requires users to type the correct spelling twice when they select the word from AppleWorks' list of suggested spellings, and adds all misspelled words to an AppleWorks data base for sorting and analysis. Spelling Teacher requires AppleWorks 3.0 enhanced with UltraMacros 3.1 or later.

NAUG members should write or call Kingwood Micro Software for a free copy of Spelling Teacher and the company's new 16-page catalog of fonts, macros, and other AppleWorks enhancements. [Kingwood Micro Software, 3103 Lake Stream Drive, Kingwood, Texas 77339; (713) 360-5013.]

Vitesse

Until January 31, 1991 NAUG members can get special prices and rebates on Vitesse's Apple II hardware and software products. (See pages 31-32 of the October 1990 issue of the *AppleWorks Forum* for descriptions of these products.) Note that Vitesse recently changed the name of "Salvation - Guardian" to "Salvation - Backup" to avoid confusion with a product from another developer.

NAUG members should consider Vitesse's Quickie Scanner. Used in combination with WestCode's InWords software, the Quickie/InWords combination can convert printed text into AppleWorks and AppleWorks GS word processor documents. There are many applications of this technology, including reducing the time it takes to type printed materials such as tests, reports, and long quotations. The

AppleWorks News...

Quickie can also scan graphic images for use with TimeOut SuperFonts and AppleWorks GS.

NAUG's special prices for the Vitesse products are as follows:

	List	Special Price	NAUG Rebate
Quickie Scanner	\$299.00	\$179.40	\$10.00
Salvation – Bakkup	49.95	24.98	2.50
Salvation – Renaissance	49.95	24.98	2.50
Salvation – Deliverance	49.95	24.98	2.50
Salvation – Exorciser	44.95	22.48	2.50
Salvation – Wings	79.95	39.98	2.50
Supreme (all Salvation products)	199.00	99.50	12.50
Harmonie	49.95	24.98	2.50

These special prices are part of Vitesse's Ambassador program; orders must be placed through NAUG's Vitesse Ambassador, Bruce Shanker. Send Bruce your order, shipping address, telephone number, and payment. You can pay by check (*made payable to Vitesse*, not to Bruce) or with your Visa or MasterCard (send Bruce your credit card number and expiration date). Your payment should be based on the amount under "Special Price" in the above chart plus \$5 s/h for the first product and \$1 for each additional product. California orders must include the appropriate sales tax. Allow two weeks for delivery of credit card orders; three weeks for orders paid by check. You then send the company a copy of your receipt and the UPC code from the product box to get your rebate. The special NAUG prices and rebate offer cannot be combined with any other offer made by Vitesse. Foreign orders by credit card only. Vitesse charges a 3.6% surcharge for foreign orders plus foreign shipping. The company only guarantees air mail shipments to foreign countries.

Send your order and payment to: Bruce Shanker, 1279 Boyd Road, Warminster, Pennsylvania 18974-2260. Our thanks to Bruce for coordinating this program for NAUG. [*Vitesse, Box 929, La Puente, California 91747-0929; (800) 777-7344.*]

WestCode

WestCode is about to release InWords, its optical character recognition software that works with Quickie scanners to read printed text into Apple-

Works. A complete description of InWords appears on page 18 of the September 1990 issue of the *AppleWorks Forum*.

InWords has a suggested retail price of \$129; however, members can purchase InWords directly from NAUG for \$77.95 plus \$3 s/h. WestCode plans to start shipping InWords on December 15; NAUG will ship the product as soon as it becomes available. NAUG will hold your check or credit card transaction until shipping your order. [*WestCode Software, 11835 Carmel Mountain Rd., Suite 1304, San Diego, California 92128; (619) 679-9200.*]

Zip Technology

The Zip GSX is an Apple IIGS accelerator board that operates at 8-megahertz, is DMA-compatible, has 16K of high speed cache memory, and dramatically enhances the speed of Apple IIGS computers. NAUG recently received a fully functional production Zip GSX board from Zip Technology; we will publish a review of the GSX in a forthcoming issue of the *AppleWorks Forum*.

The Zip GSX has a suggested list price of \$350. However, until January 31, NAUG members can get a Zip GSX directly from the manufacturer for \$239.

Zip also announced special NAUG member prices for its 4-megahertz and 8-megahertz Apple IIe and IIc accelerators. Until January 31, NAUG members can get an 8-megahertz Zip Chip directly from the company for \$139 (list price \$199) and a 4-megahertz Zip Chip for \$94 (list price \$125). You must identify yourself as a NAUG member when you place your order.

[*Zip Technology, 5601 West Slauson Avenue, Suite 190, Culver City, CA 90230; (213) 337-1313.*]

*Seasons Greetings
to all our members*

— From the editors and staff at
The National AppleWorks Users Group

How to Use Calculated Fields

Dan Verkade

This is the sixth in a series of articles that describe how to use TimeOut ReportWriter. This month's article describes how to add calculated fields to a report. The author assumes you read the previous articles in this series.

Now that you can plan and produce simple relational reports, it is time to start using the more advanced features of ReportWriter.

The data in your first relational report (see the October 1990 issue of the *AppleWorks Forum*) came directly from AppleWorks data base files. This month you will learn how to use ReportWriter to create calculated fields.

Calculation Basics

Unlike AppleWorks, which limits you to a maximum of three calculated categories, ReportWriter accepts any number of calculated fields in every report.

Defining a calculated field in ReportWriter is easy; all you do is select "Calculation" as the field source and enter a formula.

Let's work through the steps necessary to add a calculated field to the Overdue Customer Report that you developed in an earlier article in this series.

As you can see from *Figure 1*, the Overdue Customer Report includes the current balance and the amount unpaid for more than 90 days. Now you will add a third column to the report that will contain the percentage of delinquent receivables to total receivables for each delinquent customer. The calculation involves dividing the amount 90 days past due by the total amount due. When you are done, your output will look like the example in *Figure 2*.

Follow these steps to add the calculated field:

1. Put the files Rolodex.1 and CustOverDue on the AppleWorks desktop. (These are the files you developed in the October article. If you did not save the files, reconstruct them now.)

Figure 1: Overdue Customer Report

Customers Overdue by 90 Days			
Customer		Current Balance	Over 90 Days
Joe Espana 987 Curtz Ave Sun City CA 95432		ESP987 \$1,232.50	\$654.75
Michael Chang 3567 Saratoga Ave Sorano AK 89724		CHA356 \$885.70	\$885.70
Jim Wallace 2367 Martinez Way Pageville CA 98124		WAL236 \$654.25	\$85.00

2. Select ReportWriter from the TimeOut Menu and edit the ReportWriter definition file called OverDueReport. Add a third column to the right of the Past 90 Days column by entering eight field markers (use the Control-F key to generate the field markers). Enter "Percent Overdue" as the heading. Your screen should look like the example in *Figure 3*.
3. Put the cursor on one of the new field markers and enter an Apple-N to define the field. Use "PercentOverdue" as the field name and "Calculation" as the source.
4. Now choose "Formula" from the Define Field Menu. The correct formula is Past90/CurBal, but follow the steps I describe below which show you some different ways to enter a formula.
5. Type "Past90" but do not press the Return Key. Past90 is the name of the field containing the 90 day past due amounts.

Figure 2: Report with a Calculated Field

Customers Overdue by 90 Days				
Customer		Current Balance	Past 90 Days	Percent Overdue
Joe Espana	ESP987	\$1,232.50	\$654.75	53.12%
987 Curtz Ave				
Sun City	CA 95432			
Michael Chang	CHA356	\$885.70	\$885.70	100.00%
3567 Saratoga Ave				
Sorano	CA 89724			
Jim Wallace	WAL236	\$654.25	\$85.00	12.99%
2367 Martinez Way				
Pageville	CA 98124			

Key, not the Escape Key. The Return Key enters the formula; the Escape Key cancels your work.)

9. Select option #5, "Format", and set the format to Percent with two decimal places.
10. Select option #8, "Other", and change the field type to Numeric.

The Define Field Menu should now look like the example in Figure 5.

11. Press the Escape Key to return to the ReportWriter Editor and issue an Apple-G to generate the report. Your report should look like the example in Figure 2. Note the new column of percentages based on the data from the file.

Figure 3: Screen with Added Field and Text

File: OverDueReport

EDITOR

Escape: Main Menu

Customers Overdue by 90 Days

Customer		Current Balance	Past 90 Days	Percent Overdue
*****	*****	*****	*****	*****

*****	** *****			

Type entry or use ⌘ commands

Row: 1 Col: 1

⌘-? for Help

Entering Formulas

Here are a few notes that will help you enter formulas:

1. After typing the fiftieth character, the cursor automatically jumps to the next line. There is no word wrap on the Formulas screen in ReportWriter. Instead, the text splits at 50 characters and the formula continues on the next line. Type normally and don't worry about word wraps when entering long formulas.
 2. You can use most of the AppleWorks text editing commands to edit your formulas. For example, Apple-Y will delete from the cursor to the end of the formula.
 3. If a formula needs more than one line, you can use the Up-Arrow and Down-Arrow Keys to move between lines. However, there must be a character immediately below the cursor for the Down-Arrow to function. This prevents the cursor from going beyond the end of the formula.
 4. ReportWriter adds cursor control keys to help you navigate around the Calculation file card. For example, Apple-Left-Arrow moves the cur-
6. Type a "/" to indicate division.
 7. You want to divide by the total due (the current balance), and you could type in the field name "CurBal". However, here is an easier method to enter field names into formulas:

Enter an Apple-F to display a list of all the defined fields. Use the Up-Arrow and Down-Arrow Keys to highlight the field "CurBal". Then press the Return Key to enter "CurBal" into the formula.

Your Formula file card should now look like the example in Figure 4.
 8. Press the Return Key to return to the Define Field Menu. (Remember to press the Return

sor to the beginning of the line; Apple-Right-Arrow moves the cursor to the end of the line.

Apple-Up-Arrow moves the cursor to the beginning of the formula; Apple-Down-Arrow moves the cursor to the end of the formula.

5. Apple-F displays a list of all defined fields. You can use the Up-Arrow and Down-Arrow Keys to highlight a field. Then press the Return Key and ReportWriter will insert the field name into the formula.

Rules for Formulas

Here are five rules for ReportWriter formulas:

1. Formulas can include field names, operators, functions, numbers, and text. ReportWriter offers four commonly used arithmetic operators and five logical operators you can use inside certain "functions". I will explain the logical operators and functions in a future article.

Arithmetic Operators

+ addition
- subtraction
* multiplication
/ division

Logical Operators

< is less than
> is greater than
= is equal to
& logical AND
? logical OR

2. You can use text in a ReportWriter formula. That lets you manipulate text based on the data returned in a formula.

For example, consider a report containing a city, state, and Zip Code. You usually type a comma and one space after the city and two

spaces between the state and Zip Code. However, if you type the required comma and spaces between these fields in your report, you will end up with extra spaces after the city name.

Examine the following format and two data items:

Format: ***** , ** *****
Data 1: Forest Falls, CA 92339
Data 2: Redlands , CA 92373

Figure 4: Formula File Card

Figure 5: Define Field Menu

ReportWriter Tutorial...

The extra four spaces before the comma in the second data item looks unprofessional. I will describe how to eliminate these spaces and how to manipulate text in a future article in this series.

3. ReportWriter substitutes the contents of a field for every field name entered into a formula. For example, when you enter the formula Past90/CurBal, the program calculates a value for every record based on the entries in those two fields.
4. ReportWriter does arithmetic operations from left to right and lets you use parentheses to control the order of operation. For example, $3 + 2 * 5$ yields a result of 25. Any operations included in parentheses occur first, thus $3 + (2 * 5)$ yields 13.
5. ReportWriter also supports "functions", pre-programmed operations that are difficult or impossible to produce using mathematical operators.

Conclusion

This month you learned how to add calculated categories to a ReportWriter report. Next month I will expand on these concepts and describe advanced calculations and text manipulation with the program's built-in functions.

[Dan Verkade is the author of TimeOut ReportWriter, DoubleData, SuperForms, and other popular AppleWorks enhancements.]

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Those hard-working macros in Soup Up Classic! are carefully thought out and meticulously documented. They really expand my AppleWorks horizon. - Ruth K. Witkin, Author of Success With AppleWorks and The Best Book of AppleWorks

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AppleWorks Add-Ons

Late News from JEM Software

JEM Software recently announced the planned January 1 release of Mr. Invoice 2.0, a complete invoice generating system that tracks inventory, sales, and backorders, and maintains customer information within AppleWorks. Version 2.0 of Mr. Invoice includes 12 new features that make the program more flexible and easy to use. These features include menu-driven invoice definition, batch processing of invoices, and support for DoubleData. The Mr. Invoice disk includes a tutorial, sample files and 15 pages of documentation. Mr. Invoice 2.0 requires AppleWorks 3.0, at least 256K of RAM, and at least one 3.5-inch disk drive.

Mr. Invoice 2.0 costs \$50; owners of earlier versions can update for \$10 directly from JEM. Send your original Mr. Invoice disk and payment to upgrade.

JEM Software is offering a Holiday discount for NAUG members. Until December 31, NAUG members can get most JEM disks for 25% off their regular retail prices. The discounted prices are as follows: Mr. Invoice 2.0: \$37.50; DoubleData: \$22.50; FlexiCal: \$22.50; MiniPaint: \$18.75; PathFinder 3.0: \$15; I.O. Silver: \$15. Members who order Mr. Invoice will receive version 1.2 now and version 2.0 when released in early January. Members can also order SpellCopy with any of the preceding disks for an additional \$10.50.

JEM now accepts VISA and Mastercard orders on their 24-hour telephone answering machine at (303) 422-4856. Add a \$2 processing fee for each disk ordered and include your NAUG membership number. The processing fee does not apply to orders paid by check or money order. You can also use JEM's new telephone number to fax orders or to fax the company your technical support questions. JEM also offers technical support on the GENie telecommunications service. To find JEM on GENie, enter "M645;1", "set 13", and "rea 16 new". To reply to a message, enter "rep 16".

[JEM Software, 7578 Lamar Court, Arvada, Colorado 80003. Orders only: (303) 422-4856.]

New Disks in NAUG's Public Domain Library

Apple Computer

The NAUG Public Domain Library now includes a new version of the 8-bit Apple II System Disk for Apple IIe, IIC, and IIC Plus computers. Version 3.2 of the System Disk includes ProDOS 8 version 1.9 (which includes a program selector that works like Bird's Better Bye), version 1.4.1 of BASIC. SYSTEM, and version 3.1 of the System Utilities. The System Utilities serve as a complete disk and file utility program which lets you copy, delete, and rename disks and files. The new Apple II System Disk uses AppleWorks-like file card menus that make it easy to use the utilities on the disk.

A note to Apple IIGS owners: You cannot use the new version of ProDOS with GS/OS 5.02. GS/OS checks the version number of ProDOS to insure that it can modify the ProDOS quit code and thus return to GS/OS. If GS/OS finds the new version of ProDOS, it generates an "Incorrect ProDOS version number" message. A complete description of this problem appears in the October 1990 issue of the excellent *A2-Central* newsletter. GS/OS users should not modify or replace any system software in GS/OS and should wait for the release of a new version of GS/OS from Apple. NAUG will announce and distribute any new versions of that software.

Change-A-File/Resurrection

Dr. Harold Portnoy continues to enhance Change-A-File and Resurrection. These excellent utility programs convert AppleWorks 3.0 files to run under earlier versions of AppleWorks and recover damaged AppleWorks files and files on disks with damaged directories. Complete descriptions of Change-A-File and Resurrection appear on page 32 of the September 1990 issue of the *AppleWorks Forum*.

The newest edition of NAUG's Change-A-File/Resurrection Disk includes version 3.01 of Change-A-File and version 2.2 of Resurrection. Resurrection 2.2 offers diagnostic routines that

identify all bad blocks, index blocks, and blocks that contain directories. These routines help you identify why you cannot access one or more files on the disk. The disk also includes an AppleWorks word processor file that discusses disk repair.

Change-A-File and Resurrection are shareware; you need a password available from the author (NAUG members: \$8; Non-member: \$10) to use many of the functions on this disk. You send this payment directly to the author after getting the disk from NAUG. Our thanks to Dr. Portnoy for preparing this bootable disk for the NAUG library.

Info Files Macros

Info Files is a collection of macros that links one category in an AppleWorks data base file with a word processor document. This overcomes AppleWorks' limit of only one screen per record and a maximum of 72 characters in each entry.

Info Files is a flexible product that lets you create a long entry for each data base record. You can use these macros to create extended comment fields for each record in a data base file. If you have Super-Fonts, you can even attach scanned images or other graphics to each record in the file.

The Info Files disk includes complete documentation and sample files. The macros require AppleWorks 3.0 enhanced with UltraMacros 3.1 or later.

Info Files is shareware. The author, John Tegelaar of Nieuwkoop, The Netherlands, requests a payment of \$10 if you use the macros on this disk.

MacroMania

NAUG's Public Domain Library now includes MacroMania, a collection of 65K of macros prepared by macro expert Will Nelken. Some of the macros on the disk include Auto-Indenter, Calendar Printer, ASP Cell Navigator, Carriage Return Terminator (adds a Return to the end of every line

Public Domain Update...

in a document), Current Macro Display, Default Macroset Updater (makes your current macro set the default set), and Delete-A-File.

The macros on MacroMania are a subset of the macros on Mr. Nelken's UltraAWesome Macros disk, which we described on page 33 of last month's issue of the *AppleWorks Forum*. MacroMania requires AppleWorks 3.0 enhanced with UltraMacros 3.1 or later.

NAUG Hard Drive Test Disk

NAUG's Public Domain Library now includes the NAUG Hard Drive Test Disk. This disk contains "IOTest" and "Tester", two programs that test the functionality of your hard disk drive and interface card.

IOTest, written by Walker Archer of Quality Computers, checks your drive by writing and reading repeatedly to each block of the drive surface. John Link's Tester program writes and reads large files on the drive. IOTest ignores the file structure on the disk, tests every block, but destroys all files on the disk. Tester preserves the file structure and data but requires extra unused space on the disk.

Our thanks to Walker Archer and John Link for developing these programs for NAUG.

Power Macros

The NAUG Public Domain Library now includes Power Macros, more than 180K of useful and interesting macros prepared by John Tegelaar of Nieuwkoop, The Netherlands.

The macros include Debug, IIGS Cursor Control (turns the IIGS numeric keypad into a cursor control center), Indent Codes, MouseText Typer, Mouse-Text Printer, Save to Subdirectory, Quick Path Selector, Add Accents (requires TimeOut Super-Fonts), Word Count, Screen Saver, Universal Data Macro (changes AppleWorks' internal memory so the date is recorded and printed in English, French, German, or Dutch), Automatic Hyphenation (Sorry, this macro only knows the Dutch rules for hyphenation.), Siren Sound, Apple Game, and Random Expression Generator.

All macros are extensively documented. Requires AppleWorks 3.0 enhanced with UltraMacros 3.1 or

later. Power Macros is shareware; you send the author \$15 if you use the macros on this disk. Our thanks to Douglas Corey for submitting these macros to the NAUG library.

Trigonometry / Analytic Geometry Disks

Mathematics teachers will appreciate two disks of trigonometry and analytic geometry worksheets and tests developed by NAUG member Mitchell Bernstein. These disks include four custom trigonometry and geometry fonts created by Mr. Bernstein. You boot these disks and download one of the fonts to your ImageWriter I or ImageWriter II printer. Your printer can then generate mathematical characters, symbols, and shapes not included in the standard character set. Then you use the AppleWorks word processor files on the disk to generate almost 100 tests, worksheets, and quizzes that you can print with these fonts.

The disks include complete documentation and a data base index of the files on both disks. Send NAUG a self-addressed, stamped, #10 envelope for a sample of the worksheets on these disks.

The Trigonometry and Analytic Geometry Disks are compatible with all versions of AppleWorks, with all Apple II computers capable of running AppleWorks, and with ImageWriter I and ImageWriter II printers. Apple IIe owners must have an Apple Super Serial Card. The disks are not compatible with other interface cards or printers.

The Trigonometry and Analytic Geometry Disks are shareware. The author requests that you submit payment of \$10 if you find the disks useful. The two disk set costs \$8 in 5.25-inch format and \$12 in 3.5-inch format. Add \$2 s/h per order.

How to Get Disks

All disks are available in both 5.25-inch (\$4) and 3.5-inch (\$6) format, plus \$2 per order for shipping and handling. Order from NAUG, Box 87453, Canton, Michigan 48187. All NAUG disks are also available for downloading from NAUG's electronic bulletin board, the Electronic Forum, and from the NAUG areas on CompuServe, America Online, and GENIE.

Help with Hardware and Printers

by Nanette Luoma

Each month, the *AppleWorks Forum* lists the member-volunteers who offer technical support for AppleWorks products. This month's list identifies the volunteers who can answer questions about hardware and printers. Next month's issue will contain a list of members who offer help with Apple IIGs hardware and software, including a list of members who offer technical support for AppleWorks GS.

Hardware/Printers

How to Use This List

To the left of each volunteer's name are numbers indicating the utilities the consultant supports. Volunteers are listed alphabetically by state.

- | | |
|------------------------|----------------------|
| 1 = Apple II+ | 8 = Interface cards |
| 2 = Apple III | 9 = RamWorks Cards |
| 3 = Apple Memory Cards | 10 = TransWarp Cards |
| 4 = Checkmate Cards | 11 = RamFactor Cards |
| 5 = Floppy Disks | 12 = RAM Disks |
| 6 = 3.5-inch Disks | 13 = Laser Computers |
| 7 = Hard Disk Drives | 14 = Laser Printers |

Alabama

		City	Home	Work
1,5-6	Norma M. Gradwohl	Mobile	205-343-4905	205-343-4905

Arizona

8	Clay Evitts	Tucson	602-885-9789	602-296-5491
13	Bill Holmes	Chandler	602-899-4841	602-786-7170

California

6-9	Dan Balsley	San Ramon	415-829-5085	
1,5-7,9,12	James Davis	Hayward	415-489-7024	
6,7	Rolf C. Freerks	San Pedro	213-833-8266	213-337-1333
5-12	David Gair	Los Angeles	213-469-9916	213-469-9916
5,6,11	Alan E. Kahn	San Anselmo	415-457-9827	
4,5,14	Wayne Kliman	Santa Barbara	805-967-3620	
5-8,11,13	Berenice Maltby	Corona del Mar	714-640-7369	
5-7, 11,12	Will Nelken	San Rafael	415-459-0845	415-456-1795
7	Jesus Orosco	Milpitas	408-270-1011	408-945-4344

Colorado

5,6,12	Gary P. Armour	Littleton	303-933-9493	303-972-4665
8-9	Lyle Graff	Littleton	303-794-5970	303-977-4557
5,8	Geoff Hollingsworth	Morrison	313 697-9277	
5,8	John Loren	Littleton	303-978-0603	
5	Dr. Larry Thæte	Boulder	303-939-9072	303-492-2717

Connecticut

5,6	William Delaney	Enfield	203-745-4048	203-749-8391
3,5,7,11	Newton Shaffer	Gales Ferry	203 464-9716	

Florida

6,8,12	H.Clay Bailey III	Jacksonville	904-744-2499	904-725-3477
1,6	Andrew Pliuka	Ft. Lauderdale	305-525-3301	
3-14	Jeff Strichard	Ft. Lauderdale	305-587-9590	
1,3,5-9,11,12	Mike Ungerman	Oviedo	407-366-0060	407-366-0156

		City	Home	Work
Illinois				
8	Mark Baniak	Park Ridge	312-825-6301	312-292-4116
1	William Davis	Hinsdale	708-655-9142	708-887-1730
1,3,5-9	George Duffey	Bloomington	708-894-0849	708-451-3106
1,2	Clifford S. Egel	La Grange Park	312-354-4639	312-387-4045

Indiana

3,5-6,12	Jack Countryman	Greensburg	812-663-4998	
6,7,12	Kevin Gold	Indianapolis	317-290-8948	317-543-7098
5	Laura J. Kelley	Gwynneville	317-763-7290	

Iowa

2,5,6,8,12,13	Keith King	Ft. Madison	319-372-9521	
7,9,10	Stephen May	Audubon	712-563-2925	712-563-4217

Kentucky

4-7,10	Donald L. Corson	Louisville	812-256-3517	502-473-3083
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Louisiana

5-6,9	Charles Fryling, Jr.	Baton Rouge	504-766-3120	504-388-1473
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Maryland

6,9	Raymond Greenberg	Darnestown	301-330-4912	301-353-4959
3,5-10,12	Ray L. Settle	Arnold	301-647-9192	301-887-0106

Massachusetts

3,5,6,9-11	Donald McCabe	Westport	401-294-6256	508-636-2611
13	Ed Stutsman	Shutesbury	413-259-1217	

Michigan

3,5-8,14	Jim Anker	Auburn Hills	313-391-0033	313-544-5344
3,7-9	Michael McMinn	Swartz Creek	313-655-4442	313-232-6541
5	James G. Reasover	Jackson	517-789-8573	517-764-1440
5-7,13	Pete Ross	Wayne	313-728-8269	
5,6	Deborah Williams	Grosse Ile	313-671-0267	313-675-1550

Minnesota

1,3,5-8,10,12	James Hirsch	Coon Rapids	612-421-8393	612-422-5572
9	Dick Kenfield	Hopkins	612-938-4382	
1,3-13	Richard Marchiafava	Fridley	612-572-9305	

Missouri

5-7,9	Whit Crowley	Manchester	314-394-7955	
3,5-7,11	Bob Suits	Columbia	314-445-6082	

Montana

5,8-9,12	Steve Bernbaum	Sheperd	406-373-6393	
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Nebraska

5,6,9	Dr. John W. Kelley	Omaha	402-397-3485	
5-10,12	Larry B. McEwen	Hastings	402-463-2267	402-461-7550

Nevada

1,3,5-6,8-9,11,13	Keith Johnson	Sparks	702-626-2543	702-784-4812
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Hardware/Printers...

		City	Home	Work
New Hampshire				
5,13	Frank R Savory	Derry		603-434-5407
1,6	Bob Skinner	Plymouth	603-536-3626	
New Jersey				
3,5,6,9,10	Pete Crosta	Nutley	201-667-6369	201-677-4050
3,5-8,10,12,15	Jay Hubschman	Fairfield	201-575-1968	201-624-8046
3,5-12,14	David Scott	Wall	201-531-0600	201-531-4016
New Mexico				
5-7,9,13	Willis George, Jr.	Albuquerque	505-897-4886	505-883-9743
5,6,8,14	David Selwyn	Las Cruces		505-522-7622
7,8,14	Gary Young	Corrales	505-897-1770	505-897-1770
New York				
5,6,9	Bob Beer	Coram	516-928-6870	
3,5-8	Linda Doscher	West Nyack	914-358-7064	
5-7	Carlos M. Madan	Morrisville	518-562-0779	518-359-3322
7,10	Larry Merow	Sayville	516-567-0603	516-422-0315
3,5-12	James L. Nicoll	Pittsford	716-381-9480	716-546-6732
10	Frances H. Snedeker	Larchmont	914-834-3081	
1,3,5-9,12,14	Jerry Taylor	Rochester	716-964-3319	
1,3,5,6,8,12	Terry Williamson	Orchard Park	716-662-5104	716-873-9750
North Carolina				
7	Marc Apfelstadt	Greensboro	919-282-1494	919-334-5970
5,6,9	Terry W. Robertson	Charlotte	704-536-4261	704-377-3939
Ohio				
1,5-8,11,13	Jason Chao	Cleveland Hts.	216-321-5451	216-844-3791
9,12	Don E. Fisher	Dayton	513-890-0428	513-461-2444
5	Jason Fogt	Lakeview	513-843-5779	
5,6,9,12	Carman Greco	St. Clairsville	614-695-5026	
3,5-7,10,12	Ltc. Robert Weis	Beavercreek	513-429-4169	513-257-6836
Oklahoma				
5,7,9	Rev. Jerry Venable	Guymon	405-338-3723	405-338-3616
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